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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,186	11/05/2003	Heliang Liu	9896-000014	7525
27572	7590	12/14/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			SILLS, THOMAS R	
			ART UNIT	PAPER NUMBER
			2633	
DATE MAILED: 12/14/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. <b>10/702,186</b>	Applicant(s) <b>LIU ET AL.</b>	
	Examiner <b>Thomas Sills</b>	Art Unit <b>2633</b>	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-9 is/are rejected.
- 7) ☒ Claim(s) 3 and 10-12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/4/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki (6,748,176 B1) in view of Mizrahi (5,982,518).

With respect to claim 1, Inagaki discloses an apparatus with two optical path selectors (OC 55 and 61, fig. 5); at least one grating fiber unit (58, fig. 5); wherein the chirped grating fiber unit is serially connected between the appropriate ports of the two optical path selectors (fig. 13); the input port of one optical path selector is connected with input optical signal of the device (port T1 on OC 55, fig. 5, col. 10, lines 18-25), and the last stage output port of one optical path selector (port T3 or selector OC 55, fig. 5) is connected with the input port of another optical path selector (port T3 of OC 61, fig. 5), the last stage output port of another optical path selector outputs the optical signal output of the device (col. 11, lines 5-10); and the grating fiber unit further is consisted of two connected grating fibers (FBG 111 and 113, fig. 13).

However, Inagaki does not teach that the gratings are chirped, have the same wavelength band, or are set oppositely.

Mizrahi teaches an add drop multiplexer that has chirped gratings (col. 4, lines 56-65), the chirped gratings being of the same wavelength band (wavelength band  $\lambda_1$ ,  $\lambda_2$ , and  $\lambda_3$ , fig. 6), and the gratings are set oppositely (150 and 250, fig. 6).

One skilled in the art at the time of the invention would have been motivated to include in Inagaki the chirped gratings, wavelength band, and "opposite" setting to utilize the apparatus in wavelength division multiplexing systems with a particular wavelength band (col. 4, lines 56-65) and to add and drop the correct wavelengths from the corresponding coupler.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include in Inagaki the chirped gratings, wavelength band, and "opposite" setting of Mizrahi.

With respect to claim 2, and in view of the combination of Mizrahi and Inagaki above, Inagaki further discloses that the optical path selector is a circulator (col. 1, lines 40-43), and one chirped grating fiber unit is serially connected between the two circulators (58, fig. 5); wherein two ports of the chirped grating fiber unit is respectively connected with the second port of the two circulators (T2 of circulator OC 55, and T1 of OC 61, fig. 5), the first port of the first circulator is inputted the optical signal input of the device (port T1 on OC 55, fig. 5, col. 10, lines 18-25), the third port of the first circulator (T3 of OC 55, fig. 5) is connected with the first port of the second circulator (T3 of OC

61, fig. 5), and the third port of the second circulator outputs the optical signal output of the device (T2 of OC 61, col. 11, lines 5-10).

In regards to claims 6 and 9 and in view of the combination of Mizrahi and Inagaki above, Mizrahi further discloses that the bandwidth of the chirped grating fiber unit is multiple wavelengths or tunable wavelengths (fig. 5 and col. 7, lines 22-25).

3. Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizrahi and Inagaki as applied to claims 1 and 2 above, and further in view of Laming (6,292,601 B1).

With regards to claims 4 and 7, the combination of Mizrahi and Inagaki meet all the limitations of the claims, but do not teach a chirped grating written on a fiber segment.

Laming discloses writing a chirped fiber grating on a fiber for optical dispersion compensation (col. 3, lines 36-58).

One skilled in the art at the time of the invention would have been motivated to include in the combination of Mizrahi and Inagaki the writing of Laming in order to implement the fiber gratings in the fiber.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include in the combination of Mizrahi and Inagaki the writing of Laming.

4. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizrahi and Inagaki as applied to claims 1 and 2 above, and further in view of Epworth (6,271,952 B1).

With respect to claims 5 and 9, the combination of Mizrahi and Inagaki meet all the limitations of the claims, but do not teach two chirped grating fibers melted together as a whole.

Epworth teaches two grating fibers melted together (col. 9, lines 17-21).

One skilled in the art at the time of the invention would have been motivated to include in the combination of Mizrahi and Inagaki the melting of grating fibers of Epworth in order to connect the two oppositely set fiber gratings of Mizrahi and Inagaki.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include in the combination of Mizrahi and Inagaki the melting of fiber gratings of Epworth.

***Allowable Subject Matter***

5. Claims 3 and 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

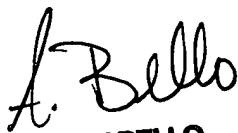
**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas Sills whose telephone number is 571-272-2813. The examiner can normally be reached on 8-5 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

J.S.  
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**AGUSTIN BELLO**  
**PRIMARY EXAMINER**